

II. Claim Rejections

Claims 1, 2 and 15 stand rejected as being anticipated or made obvious by Halmann '856.

Claims 1 - 58 stand rejected as being made obvious by Ben-Haim '946 in view of Halmann.

Claims 1, which has not been amended, includes the steps of generating a three-dimensional model of a region of interest; determining the three-dimensional location of a physical characteristic in the region of interest using at least one probe positioned within the living body; deforming the model to at least approximately incorporate the physical characteristic at the determined three-dimensional location; and displaying the model on a graphical display. Claims 2 - 14 are dependent on Claim 1 and thus also include these recitations.

The recited combination of steps, including the step of *deforming the model to incorporate the physical characteristic at the determined three-dimensional location*, is not found in either Halmann or Ben-Haim '946. As understood by Applicant, Halmann does not *deform* a graphical model but instead *superimposes* additional features onto the image being displayed. Ben-Haim '946 likewise does not describe the step of deforming a graphical model. Accordingly, Claims 1 - 14 are not anticipated or made obvious by Halmann, nor are they made obvious by Ben-Haim '946 in view of Halmann.

Claim 15, which has not been amended, includes the steps of generating a three-dimensional model of at least a portion of an organ, the model including a plurality of anatomical features corresponding to anatomical features in the organ; obtaining the relative three-dimensional locations of known anatomical features in the organ using a reference probe positioned in the organ; deforming the model using the determined relative three-

dimensional locations of the anatomical features in the organ to approximately correlate the three-dimensional locations of the anatomical features on the model to the determined locations of corresponding anatomical features in the organ; and graphically displaying the model. Claims 16 - 22 are dependent on Claim 15.

For the reasons discussed above, Halmann and Ben-Haim '946 are understood by Applicant to lack any teaching of *deforming the model* using determined relative three-dimensional locations of anatomical features in the organ to approximately correlate the three-dimensional locations of the anatomical features on the model to the determined locations of corresponding anatomical features in the organ. Claims 15 - 22 are therefore patentable over the cited references.

Claim 23, also un-amended, includes the steps of generating a three-dimensional model of the heart, obtaining the relative three-dimensional locations of known anatomical features in the heart using a reference catheter positioned in the heart; *deforming the model using the determined relative three-dimensional locations* of the anatomical features in the organ to approximately correlate the three-dimensional locations of the anatomical features on the model to the determined locations of corresponding anatomical features in the heart. Claims 24 - 30 are dependent on Claim 23. Given the absence of any teaching in Halmann or Ben-Haim '946 for the recited deforming step, Claims 23 - 30 are patentable over these references.

Claim 31, which also remains unamended, includes a graphical display; display software for generating a model of a region of interest and for displaying the model on the graphical display; a probe positionable with a region in a living body corresponding to the region of interest; a localization system for determining the three-dimensional location of at least a portion of the probe when the probe is positioned in a living body, and for deriving the three-dimensional location of a physical characteristic in the region of interest from the determined three-dimensional location of the probe; and

transformation software for deforming the model to at least approximately incorporate the physical characteristic at the determined three-dimensional location. Claims 32 - 37 are dependent on Claim 31. For the reasons explained above, there is no teaching in Halmann or Ben-Haim '946 of the recited combination of features, including *transformation software for deforming the model to at least approximately incorporate the physical characteristic at the determined three-dimensional location*. Claims 31 - 38 are thus patentable over the cited art.

Claim 38 similarly recites a system including *transformation software for deforming the model to at least approximately correlate the three-dimensional locations of the anatomical features on the model to the determined locations of corresponding anatomical features in the organ*, and is thus patentable over the cited references. Claims 39 - 47 are dependent on Claim 38 and are patentable for the same reasons.

Claim 48, as amended, recites a method of graphically displaying and dynamically correcting an image of an organ, which includes generating a graphical model of the organ; inserting a catheter into the body and obtaining data corresponding to the location of a physical characteristic associated with the organ; *deforming the graphical model with the location data to increase the conformity of the model to the actual organ within the body*; and displaying the deformed graphical model. Claims 49 - 55 are dependent on Claim 48. These claims are thus patentable for reasons similar to those set forth above.

Finally, amended Claim 56 is a system claim that includes means associated with the catheter for generating data related to the position of the catheter and wherein said processor utilizes said position data to deform the displayed model of the organ. Claims 57 and 58 are dependent on Claim 56. Again, these claims are patentable given the apparent absence in Halmann and Ben-Haim '946 of a disclosure of a processor that utilizes acquired position data to deform the displayed model.

III. New Claims 59 and 60


New independent Claims 59 and 60 have been added. These claims are believed patentable for reasons similar to those set forth with respect to Claims 1 - 58.

IV. Conclusion

In view of the forgoing, all claims are believed allowable over the cited references. Early reconsideration and allowance of the claims is thus respectfully requested.

Respectfully submitted,
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